Maternal Mortality and Morbidity Review in Massachusetts

A Bulletin to Promote Safe Motherhood

Number 2 May 2002

Introduction

Deaths caused by violence, drug overdose, and motor vehicle collisions (MVCs) are often overlooked when states conduct reviews of pregnancy-associated deaths. While the annual number of pregnancy-associated deaths is relatively low in Massachusetts, one in three deaths of women who die while pregnant or during the first year postpartum is caused by an injury. From a public health perspective, these deaths are potentially preventable through changes in policies, prevention and treatment programs, and clinical practice. Furthermore, these deaths are sentinel events that can provide important clues about maternal morbidity. This bulletin coincides with national efforts to improve the health of pregnant women and mothers of infants, including an effort currently being spearheaded by the Centers for Disease Control and Prevention (CDC) to promote safe motherhood across the nation[1]. Safe motherhood means promoting the well being of women to help them achieve healthy pregnancy, birth and parenthood. This includes preventing pregnancy-associated illness, injury and death.

Pregnancy-Associated Injury Deaths:

Violence, Substance Abuse and Motor Vehicle Collisions

1990-1999

The information in this bulletin is an outgrowth of the work of the Massachusetts Maternal Mortality and Morbidity Review Committee (MMMRC), which reviews maternal deaths, studies the incidence of pregnancy complications and makes recommendations to improve maternal outcomes and prevent mortality. The MMMRC was established in 1997 by the Commissioner of the Massachusetts Department of Public Health (MDPH). In May 2000, the MMMRC published Bulletin #1 entitled "Pregnancy-Associated Mortality: Medical Causes of Death, 1995-1998".

For a more detailed description of the background of the MMMRC, study methodology, past committee findings and recommendations, please refer to this bulletin:
http://www.mass.gov/dph/bfch/mcfh/safemoms.htm.

Purpose

This bulletin addresses the following questions:

- What proportion of pregnancy-associated injury deaths are due to violence, drug overdose, and motor vehicle collisions?
- Which women are more at risk for dying as a result of pregnancy-associated injuries?
- When are pregnant women and mothers of infants most at risk for dying from injuries?
- How can professionals working with pregnant women and mothers of infants promote safe motherhood?

How to Use this Bulletin

Given the need for a broad-based approach to prevent pregnancy-associated mortality, the intended audience of this bulletin includes obstetricians, certified nurse midwives, pediatricians, nurse practitioners, family practitioners, internists, physician assistants, hospital obstetric nurses and social workers, community agencies and organizations, and other public health practitioners. This bulletin and the accompanying guide may be used in a variety of ways. Information presented will aid in understanding the scope of pregnancy-associated injury deaths and may serve as a stimulus to implement clinical, agency and community or state level strategies to make motherhood safer in Massachusetts. The re - movable resource guide, *In Brief: A Guide to Safe Motherhood* provides a convenient summary of key findings, a list of resources and injury prevention self-assessments for a variety of providers. This bulletin is available online and may be reprinted and distributed freely.

Additional information and links to other resources are available at the following web address:
www.mass.gov/dph/bfch/mcfh/safemoms.htm

Definitions

The following definitions were used in the preparation of this bulletin.

Pregnancy-associated Death

The death of a woman while pregnant or within one year of termination of pregnancy, irrespective of cause (CDC/ACOG[2]).

Pregnancy-associated deaths are divided into two groups: deaths caused by a medical condition and those caused by an injury. Deaths caused by medical conditions were discussed in Bulletin #1.

(http://www.mass.gov/dph/bfch/mcfh/safemoms.htm).

Pregnancy-associated Injury Death

The death of a woman while pregnant or within one year of termination of pregnancy due to an external cause, irrespective of intent.

For the purposes of this report, causes of injury deaths are divided into the following categories:

Homicide

A fatal injury inflicted by another person with intent to injure or kill by any means. Intentional injury deaths include confirmed homicides including domestic violence.

Domestic violence. A homicide where the assailant was known or alleged to be an intimate partner or family member of the victim.

Suicide

A death was a suicide if there was sufficient evidence for the Medical Examiner to confirm that the injury was self-inflicted.

Motor Vehicle Collision

Any unintentional injury death involving a motor vehicle, including motor vehicle crashes involving drivers, passengers, or pedestrians.

Drug or Alcohol Overdose

Any injury death caused by a lethal amount of alcohol and/or drugs, including illegal drugs and/or prescription medications.

Drug or alcohol overdose deaths do not include deaths of women with known histories of substance abuse that died from other causes. In this report, intentional overdoses are included in the suicides, and those with undetermined intent are reported in the drug overdose category.

Other Injuries

Injury deaths from other causes where the intent was unintentional or undetermined.

Methods

Case Finding

Pregnancy-associated deaths occurring in Massachusetts from 1990 to 1999 were identified through mandatory facility reporting to the MDPH Division of Health Care Quality, and manual and automated reviews of death certificates. In addition to these traditional case-finding methods, the MDPH Registry of Vital Records and Statistics employed enhanced surveillance methods linking birth certificates and fetal death certificates to death certificates of reproductive age women. These methods capture most pregnancy-associated deaths, but may miss a pregnant woman who dies before 20 weeks gestation because a fetal death certificate is not issued and the woman's death certificate does not state she was pregnant.

Data Sources and Analyses

Vital records data (i.e. death certificates and certificates of infant birth or fetal death) were used to analyze all deaths - from 1990 to 1999. Additional information was obtained from case reviews conducted

by the MMMRC using hospital medical records for deaths occurring from 1995 to 1999.

Categorizing Deaths as Injury-Related

Deaths were categorized as injury-related if the underlying cause recorded on the death certificate was coded with an International Classification of Diseases' E-Code, 9th edition. Injury deaths were further categorized as intentional (homicide or suicides), unintentional (accidents), or of undetermined intent. During the study period, unintentional deaths included motor vehicle collisions and drownings. Deaths of undetermined intent included drug overdoses and other injury deaths. In order to identify homicide deaths due to domestic violence, the relationship between the victim and assailant was ascertained from newspaper articles and from local organizations including the Massachusetts Office for Victim Assistance, Jane Doe Inc., and Peace at Home.

Timing of Injury Deaths in Relation to Pregnancy

Looking at timing of death in relation to pregnancy permits assessment of missed opportunities and development of targeted intervention strategies. The following three periods of risk were used to examine the timing of injury deaths:

- Pregnancy[3]
- Traditional postpartum period: up to 42 days after birth or termination of pregnancy
- Late postpartum period: between 42 days and one year after birth or termination of pregnancy

–Between 42 days and six months postpartum
–Between six months and one year postpartum

Assessment of Screening for Domestic Violence and Substance Abuse

All hospital medical records of women who died between 1995 and 1999 were reviewed for documentation of screening for current or prior history of domestic violence and/or substance abuse. Out of 112 cases of pregnancy-associated mortality between 1995 and 1999, there was sufficient information available to assess documentation of screening for domestic violence for 96 cases and documentation of screening for substance abuse for 101 cases.

Brainstorming to Develop Prevention Strategies

Prevention strategies presented in this bulletin were developed in collaboration with the MMMRC, MDPH staff, experts in domestic violence, injury prevention, and substance abuse, clinicians, and other public health practitioners. In August 2000, a public health summit was convened at MDPH to discuss the results of the case reviews and analysis of pregnancy-associated injury deaths, identify gaps in knowledge and services, and develop strategies for the prevention of similar deaths in the future. Following the summit, MMMRC staff have continued to work with key stakeholders to refine the strategies in this bulletin.

Findings

How do injuries contribute to the overall pregnancy-associated mortality ratio?

From 1990 to 1999, 232 women were identified who met the definition of a pregnancy-associated death. Of the 232 deaths, more than one-third (n=80) were injury-related.

	N	Ratio*
Injury	80	9.4
Medical	152	17.8
Total	232	27.2

Pregnancy-Associated Mortality Ratios, 1990-1999
*Number of deaths per 100,000 live births

Pregnancy-associated mortality ratios (PAMR) are calculated as the number of pregnancy-associated deaths per 100,000 live births. The overall PAMR from 1990 to 1999 was 27.2 per 100,000 live births [4]. The PAMR for injury deaths was 9.4 and the PAMR for medical conditions was 17.8.

What proportion of pregnancy-associated injury deaths were due to violence, drug overdose, or motor vehicle collisions?

Among the 80 injury deaths, nearly half resulted from violence, more than one-quarter were caused by motor vehicle collisions, and one-fifth were caused by drug overdose.

Distribution of Injury Deaths, 1990-1999 (N=80)

Drug Overdose (N=16)

The majority of substance abuse deaths were overdoses of more than one drug (n=10). None of the deaths were alcohol-related.

Type of drug Involved:

- Cocaine was involved in 10 deaths
- Heroin/opiates in 8 deaths
- Morphine in one death

Four deaths involved unspecified narcotics.

Motor Vehicle Collisions (N=21)

The majority of unintentional injuries were due to motor vehicle collisions.

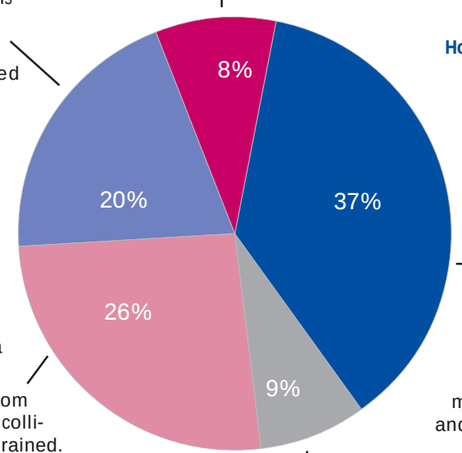
In 18 of the 21 MVC deaths, the woman was the driver or passenger.

In three cases, the woman was a pedestrian hit by a vehicle.

In three cases, the death resulted from a single occupant, single vehicle collision in which the driver was unrestrained.

Suicide (N=7)

Three cases of confirmed suicide were caused by overdose of prescription drugs. The remaining four cases involved other methods including hanging, cutting, and firearms. Suicide deaths may be undercounted because there is insufficient evidence to determine the intent.



Homicide (N=30)

Homicide was the single leading cause of injury death during the ten-year period.

Homicides involved assaults by firearms (n=12), stabbing (n=10), strangulation (n=3) and other unspecified methods (n=5).

Victim-Assailant Relationship:

- Two-thirds (n=20) of homicide deaths were known or alleged cases of domestic violence.
- Three were known to be unrelated to domestic violence.

There was insufficient evidence to determine the relationship between the victim and assailant for the remaining 7 deaths.

Other Injuries (N=6)

Includes three drownings and three injuries of undetermined intent.

Which groups of women were more at risk for dying of pregnancy-associated injuries?

Race/Ethnicity

- Black non-Hispanic women were over 4 times more likely and Hispanic women over twice as likely as white non-Hispanic women to die from pregnancy-associated injuries.
- Black non-Hispanic women were over 10 times more likely and Hispanic women 4 times more likely to be murdered than white non-Hispanic women.
- Hispanic women died nearly two times as often and black non-Hispanic women died over three times more often than white non-Hispanic women either in a car crash or being hit by a car.
- Homicide was the leading cause of injury death for black non-Hispanic and Hispanic women and motor vehicle collision was the leading cause for white non-Hispanic women.
- All 7 confirmed suicides were white non-Hispanic women.
- Of the 16 women who died of a pregnancy-associated drug overdose, 75% were white non-Hispanic and 25% were Hispanic.

Age at Death

- The pregnancy-associated mortality ratio (PAMR) for injury deaths was three times higher for younger women (ages 15-24) compared to older women (ages 25-44).
- Homicide was the leading cause of injury death among women ages 15-24, while drug overdose was the leading cause among the older age group.

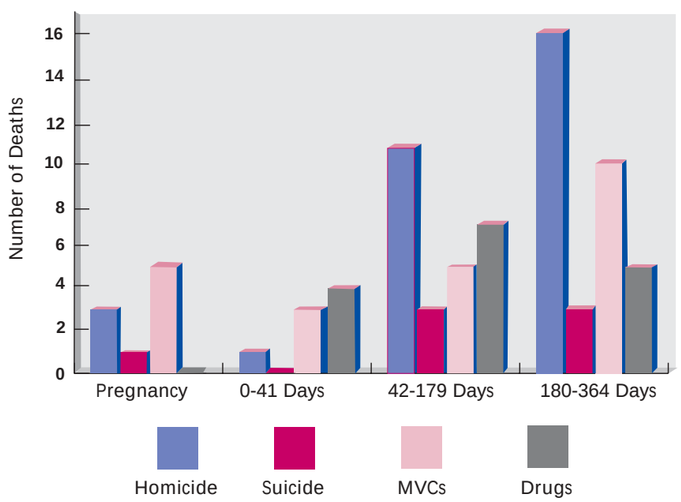
Health Insurance at Delivery

- Low income (<225% of federal poverty level) women who had a live birth and a public payer such as MassHealth or Healthy Start, were 7.5 times more likely to die from a pregnancy-associated injury as women with a private payer.
- All of the women with live births who died of a drug overdose had public health insurance.

When were pregnant women and mothers of infants most at risk for dying from injuries?

Although risk for violence, substance abuse, and unintentional injury death exists throughout pregnancy and the first year postpartum, the level of risk varies by period and cause. The majority of deaths (76.3%) caused by injuries occurred in the late postpartum period (42-364 days)

Timing of Injury Deaths in Relation to Pregnancy, 1990-1999



Violence

- The majority of homicide deaths (89%) occurred in the late postpartum period, with over half occurring at least six months postpartum.
- The majority of suicide deaths (N=6) occurred after the traditional post-partum period.

Motor Vehicle Collisions

- Deaths due to motor vehicle collisions occurred across all periods with two-thirds occurring after the traditional postpartum period.

Drug Overdose

- The majority of drug overdose deaths occurred between six weeks and six months postpartum.
- There were no drug overdose deaths during pregnancy.

Promoting Safe Motherhood

This section is intended to encourage discussion and guide innovation for making motherhood safer in Massachusetts.Effective prevention and intervention hinge on the ability to engage women where they seek services and support. Points of opportunity for clinical and community providers to reach pregnant women and mothers of infants are identified. Issues and strategies related to domestic violence, suicide and postpartum depression, substance abuse and motor vehicle collisions are highlighted by presenting scenarios, (composite vignettes drawn from real cases), to illustrate missed opportunities for prevention. Strategies covering a continuum of services for each topic are suggested.

Points of opportunity to promote safe motherhood

Pregnancy and the first year postpartum are periods of close contact with health care and community providers. During pregnancy and the first weeks postpartum, a woman is likely to seek services for her own needs. But after six weeks postpartum she is more likely to seek health care and other services for her infant. Throughout pregnancy and the first year postpartum, a woman typically may have 15 or more encounters with obstetric, pediatric and adult primary care providers. If this woman utilizes other public health programs for pregnant and parenting women, she is seen more often.

Domestic Violence

Missed Opportunity:

Recognizing Women at Risk for Domestic Violence

Scenario: *Upon becoming pregnant a 19-year-old woman began to experience abuse at the hands of her boyfriend. Shortly before the birth of the baby, she threatened to leave the relationship and the violence appeared to abate. After the birth the violence began again and slowly escalated. About 8 months postpartum, her boyfriend murdered her. Although screened for domestic violence once in early pregnancy, she was not prepared to disclose to her new provider. She was never assessed again during prenatal care, at the birth hospital, the postpartum visit, WIC or in the pediatric provider's office.*

Focus on Screening for History of Domestic Violence

From 1995 to 1999, only 1 out of 4 women who gave birth and died within one year had documentation in the hospital birth chart of screening for past or current history of domestic violence.

Screening and Information about Resources

Most victims of domestic violence do not readily acknowledge a history of abuse but they are more likely to disclose domestic violence when asked by their health care providers. Therefore, it is imperative that health care and social service providers incorporate routine domestic violence screening into their practices. Although screening is traditionally done in the provider's office, it should also be incorporated into programs and other services that reach women.

Things to remember when screening for domestic violence:

- Screen and make referral information available to all patients.
- Pay attention to confidentiality and safety concerns. Never conduct screening in the presence of the partner, family, or friends.
- Set the context by using framing questions and ask questions that describe behaviors (e.g. "Have you ever been hit?") and avoid stigmatizing words such as "abused" or "battered".
- Screen for domestic violence repeatedly. Do not expect a woman to disclose domestic violence the first time she is asked.
- If a language barrier exists, use a qualified interpreter who has received training in domestic violence.
- If domestic violence is disclosed, focus on providing the woman with resources and developing a safety plan. Offer a private place to call a hotline if she is interested.
- Get acquainted with the range of community resources available to assist women in abusive situations. Even if a woman does not want to leave an abusive situation, there are many services, including counseling and safety planning, that are offered by domestic violence programs.
- Do not underestimate the significant barriers to leaving an abusive or violent situation, which may include fear, economic stability or survival, cultural constraints, social isolation, and belief in the promises of change made by the batterer.

Assessment of Safety in the Context of the Family

In order to promote the safety and health of both mothers and children, professionals need to assess safety and violence in the context of the family. Screening mothers for domestic violence can help protect all members of a household who may be exposed to or experiencing violence. Pediatric providers and professionals who work with children and families can incorporate screening for domestic violence as part of anticipatory guidance.[5]

Training on Domestic Violence

Clinical, social service, and community providers often feel uncomfortable about screening for domestic violence because they do not know how to ask about domestic violence and they are unprepared to deal with clients' responses. There are many local domestic violence programs that provide professional training and consultation. Staff from Jane Doe, Inc. are available to coordinate trainings for providers and agencies. In addition, the Massachusetts Medical Society has developed a curriculum (see Resource Guide). Training should cover the following topics:

- Dynamics of domestic violence
- Screening tools, protocols, and referral mechanisms
- Importance of routinely providing all patients with information regardless of whether domestic violence is disclosed
- Community resources, including hotlines, shelters, and support groups
- Cultural issues specific to the populations served
- Legal assistance and support for victims
- Child advocacy programs
- Other services available in the community

Protocols and Policies

Health care institution and agency protocols should include guidelines for screening, patient education, response processes and referral. Incorporating screening tools into the health care processes, such as on the intake form, can also be effective in encouraging the adoption of screening practices at the institutional level. Quality improvement activities can assess compliance with institutional protocols.

Referrals and Resources

Clearly effective patient education and screening practices need to be coupled with knowledge of resources available to women if they disclose domestic violence. A resource list should be developed for clinicians, social service providers, and other community organizations and services. This can include national and local hotlines, shelters, support groups, legal assistance, and procedures for obtaining protective orders.

Development of a Safety Plan

A woman's current level of risk for domestic violence should be assessed and strategies to seek safety and support in the event of violent episodes should be discussed. In addition, it is important to discuss the resources that a woman would need in order to leave a violent or abusive relationship. A woman should never be pressured to leave a violent or abusive situation. Ultimately, the woman should decide when it is safe to leave or otherwise seek safety and support. Ideally, comprehensive safety planning should be conducted by domestic violence program staff. However, basic safety planning is an important part of the response to any disclosure. The safety plan includes:

- Escape plans and safety steps during violent episodes
- A place to go to (family, friends, shelter)
- Resources for daily living (money, clothing, personal documents)
- Contact information for domestic violence programs, hotlines, shelters, support groups, and legal advocates

• An understanding of the legal system and options, including restraining orders

Documentation of Domestic Violence in Medical Record

Any disclosure of current or past physical, sexual, or emotional abuse should be clearly documented in the medical record. Providers can carefully document what the woman states she is experiencing or has experienced by using the woman's own words in quotes. Notes should also include specifics of the incident, physical examination findings and results of diagnostic procedures, options discussed, referrals offered, and plans for follow-up. In addition, photographs documenting the extent of the injuries can also be beneficial. Any disclosure of domestic violence must be treated confidentially.

Public Education about Domestic Violence

Educating the public and raising awareness about domestic violence are critical components of domestic violence prevention efforts. Topics should include exploration of gender roles and expectations, personal safety, legal statutes, resources, and social norms and attitudes that support non-violence. Community-based organizations and agencies can contribute to raising awareness by implementing educational campaigns targeted to the general public. Media campaigns that emphasize resources for victims of domestic violence, including contact information, can be effective means of reaching both victims of domestic violence and the general public. School-based programs that teach children and adolescents about violence and safety will also contribute to the prevention of future perpetration of violence.

Suicide and Postpartum Depression

Missed Opportunity:

Identifying Postpartum Depression & Suicide Risk

Scenario: In the space of six weeks following delivery, a 37 year old woman had a postpartum visit with her obstetric provider, adjustment of asthma medications with her primary care provider, and a well child visit for her infant. During this time she had appetite loss, was very fatigued and cried intermittently. Although she told her providers she was not her "old self", she was never screened for postpartum depression. At 7 months postpartum she took a lethal overdose of prescription pain medication.

Introduction

Although suicide and postpartum depression are distinct issues for pregnant and postpartum women, depression is a risk factor for suicide, associated with substance abuse and violence, and a predisposing factor for unintentional injury. Many of the strategies for prevention and intervention for depression and suicide are similar and therefore both issues will be addressed together in this section.

Screening for Suicide Risk

By identifying women at risk for suicide, professionals can engage women in treatments that aim to reduce the personal and situational factors associated with suicidal behaviors. In particular, women who are experiencing depression associated with pregnancy or postpartum depression should be screened for suicidal ideation or behavior.

Health care professionals, social service providers, and staff of community-based agencies and programs are often not adequately trained to assess suicidal patients and respond appropriately.

Training needs to include screening tools, how to recognize risk factors for suicide, and appropriate interventions and referrals to manage women at risk.

Referrals and Resources for Suicide Prevention

Once a woman identifies emotional and/or psychological distress, risk factors for suicide, or suicidal ideation, it is imperative that she become connected with resources in the community, including mental health services. This may include referring the client to services for other issues in her life, which may be contributing to her suicide risk, including substance abuse or domestic violence.

Education on Postpartum Depression during Pregnancy and the Early Postpartum Period

Given that many women experience postpartum blues and a significant proportion develop major depression after delivery, women would benefit from the dissemination of information regarding postpartum depression during pregnancy and in the early postpartum period.

Such efforts should educate women about:

• What to expect in terms of psychological reactions to new motherhood
• Symptoms of major depression
• Importance of prompt intervention

In addition, universal education may motivate women to discuss any symptoms with providers following childbirth as well as seek clinical advice if symptoms worsen. Educational interventions include one-on-one counseling with pregnant and postpartum women and printed materials.

Screening for History of Depression and Postpartum Depression

Prenatal Screening for Risk Factors for Postpartum Depression. Prenatal administration of a checklist of symptoms and risk factors for postpartum depression can increase the identification of high-risk mothers, especially given that level of depressive symptoms during pregnancy is a significant risk factor for subsequent postpartum depression. Women at high-risk for postpartum depression could benefit from counseling, enhanced social support, and education prior to childbirth.

Screening during the Postpartum Period. Despite the fact that postpartum women experience depressive symptoms, most women do not recognize their symptoms as depression. This necessitates active screening and intervention by clinicians, public health professionals, and social service providers who have contact with women during the postpartum period. Information on screening tools available for prenatal and postpartum use are included in the endnotes[6]. Postpartum screening for depression is complicated by the fact that many women are lost from the health care system during the postpartum period. Pediatric providers, social service providers, and programs that reach postpartum women can provide screening and information.

Referrals and Resources for Postpartum Depression

Once identified through screening, postpartum women should be referred to mental health services for treatment. In addition, it is critical to evaluate the severity of the symptoms and the strength of the support system available to women who are suffering from postpartum depression.

Community-based Interventions to Prevent Postpartum Depression

Through the creation of support groups for postpartum women, primary prevention of postpartum depression is possible. These support groups can become part of the outreach programs at community health centers, obstetric clinics, and hospitals. In addition community-based initiatives that aim to increase knowledge about services in the community may help in the transition from pregnancy to motherhood. Social support resources often buffer the stresses of pregnancy, childbirth, and new motherhood. Not only can this allow women access to needed services in the community, it can create a greater sense of social support and enhance women's social networks.

Substance Abuse

Missed Opportunity:

Preventing Postpartum Relapse

Scenario: *A 32-year-old struggled with drug addiction for several years. She was very motivated to have a healthy baby, so she entered residential drug treatment and stayed drug-free during her pregnancy. At approximately six weeks postpartum, she left her residential treatment program. Soon after, she was lost to follow-up. At three months postpartum, she overdosed on cocaine and heroin and was found dead at her home.*

Focus on Screening for History of Substance Abuse

From 1995 to 1999, 9 out of 10 women who gave birth and died within one year had documentation of screening for past or current history of substance use in the hospital birth chart.

Screening for Substance Abuse

Universal screening for substance use through history taking provides an opportunity to counsel women on substance abuse and make referrals for treatment. In general, routine and universal screening may provide an opportunity to discuss the risks of alcohol and drugs with women who may not currently have substance abuse problems. Delivering a drug-free baby is a powerful motivating force for pregnant women to seek substance abuse treatment. However, risk for substance abuse relapse is high after delivery. Therefore, screening should be conducted during pregnancy and throughout the postpartum period.

Things to remember when screening for substance use and abuse:

- Screening should be routine and universal.
- Screen for substance use and abuse repeatedly. Do not expect a woman to disclose substance use the first time she is asked.
- When screening for substance use, consider that there are significant barriers to disclosing substance use. Women may be concerned about losing their children if they disclose substance use, and, therefore, may be placed in the position of choosing between getting treatment and staying with their child(ren).
- If a woman discloses substance abuse, a brief intervention assessing use, advising harm reduction and health promotion, and focusing on providing the woman with resources and referrals to appropriate treatments that are women-centered and family-centered should be offered.

Training

Providers and professionals who work with pregnant and postpartum women should be trained on substance abuse screening, intervention, and referral in order to appropriately address women's needs. Staff from the Institute for Health and Recovery (http://www.healthrecovery.org/), and the MDPH Bureau of Substance Abuse (http://www.state.ma.us/dph/bsas/bsas.htm) are available to provide technical assistance and coordinate training for providers and agencies.

Trainings should cover the following topics:

- Dynamics of substance use and abuse
- Screening tools, protocols, and referral mechanisms
- Importance of routinely screening and providing information to all women regardless of whether substance abuse is disclosed
- The process of recovery and the importance of referring to women-centered and family-centered treatment
- Resources in the community.

Referrals and Resources

A resource list should be developed for clinicians, social service providers, and other community organizations and services. This can include treatment programs in the community, mental health services, national hotlines, and support groups for English and non-English speakers.

Documentation of Reported Substance Use in the Medical Record

Any substance use that is disclosed should be documented carefully and thoroughly in the medical chart. This includes identifying the type, amount, and frequency of substance use as well as whether the woman has received treatment for substance abuse. In addition, providers should note any other issues in the woman's life that may contribute to or complicate her substance use (a partner with substance abuse problem). Any disclosure of substance use must be treated confidentially.

Continuity of Substance Abuse Treatment

Referrals should be in place for women who were in treatment during pregnancy to ensure continuity of care in the postpartum period, thereby preventing relapse. Utilizing discharge planning as an opportunity to counsel women about postpartum treatment options can be effective in assisting and encouraging continuity of care. When pregnant and postpartum women leave specialized treatment, an appropriate discharge plan and referrals to aftercare are required, and substance abuse providers should ensure follow-up. Since women usually leave obstetric care after delivery, pediatric and social service providers who have contact with postpartum women can be effective in communicating how staying drug-free can have positive effects on their roles as mothers.

Treatment Plans That Consider Women's Role as Mothers

A significant barrier to treatment for postpartum women with substance abuse problems is their role as mothers. Children are often not incorporated into the treatment plan. In fact, women often fear that their children will be taken away as a result of disclosing substance abuse and seeking treatment. Thus, interventions need to consider women in the context of their roles in the family. Residential treatment programs can accommodate women with infants; however, women must enter the system early in the postpartum period to be eligible for services.

Clinicians and social service providers can encourage women to seek treatment early in the postpartum period and can offer referrals to such programs. For women in outpatient treatment, the availability of childcare programs can improve participation and enhance the recovery process. MDPH funds childcare in selected outpatient treatment sites in every region.

Motor Vehicle Collisions

Missed Opportunity:

Seatbelt Use During Pregnancy

Scenario: A 28-year-old woman was eight months pregnant and stopped wearing her seatbelt because she thought it would harm her baby. During prenatal care visits, she did not receive any information about proper seatbelt use during pregnancy. She was sitting in the passenger side unrestrained when her car was hit from behind. She suffered fatal injuries when her head hit the windshield.

Counseling about Vehicular Safety

Counseling about vehicular safety should stress the benefits of routine seatbelt use and the importance of proper positioning of the seatbelt during pregnancy, and ways to prevent distracted driving when children are in the vehicle.

Encourage Maternal Vehicular Safety In Conjunction with Child Passenger Safety

Pediatric providers should include information and screening, related to vehicular safety and seatbelt use during well-child visits, particularly when talking with parents about child passenger safety. In addition, broad-based child passenger safety efforts can be used to a component to assess vehicular safety for the entire family, including parents.

Things to remember when providing screening and counseling on vehicular safety:

• Counseling should inform women about the benefits of routine seatbelt use throughout the lifespan.

• Screening and counseling should occur at multiple points in women's lives and can be targeted depending on the period of risk. For example, prenatal care providers can counsel women on proper seatbelt use during pregnancy while pediatric providers can provide counseling on distracted driving to mothers.

• Proper seatbelt positioning should be demonstrated to all pregnant women. Many women do not know how to properly position the seatbelt during pregnancy, thereby putting themselves at increased risk.

Promote Vehicular Safety Education Messages

Written materials, such as pamphlets, can facilitate routine and proper seatbelt use. This may be especially effective in demonstrating proper seatbelt use during pregnancy. Posters in obstetric and pediatric offices and other sites frequented by pregnant women can be used to educate women about vehicular safety and motivate them to wear seatbelts.

Incorporating messages about driving safety and seatbelt use into existing community-based programs can help disseminate injury prevention messages, especially programs that directly involve pregnant and postpartum women.

Community-wide Educational Campaigns

Local public education campaigns are needed to inform families about the importance of seatbelt use and proper positioning of the seatbelt during pregnancy, as well as ways to avoid being distracted while driving.

Conclusion

Compared to other states, the risk of dying in Massachusetts during pregnancy, childbirth or the first year postpartum is extremely low. However, every pregnancy-associated death is a sentinel event that may teach us valuable lessons about preventing future pregnancy-associated mortality and morbidity. Injuries are responsible for a substantial proportion of pregnancy associated deaths. Understanding the interplay of issues highlighted in this bulletin is critical to promoting safe motherhood. Domestic violence, suicide, depression, substance abuse and other issues and behaviors that put women at risk for mortality and morbidity are often not independent factors.

Every encounter with a pregnant or parenting woman is an opportunity to prevent mortality and morbidity associated with violence, substance abuse, or motor vehicle collisions. When considering what you can do to make motherhood safer, we hope you will use the information in this bulletin to evaluate current policies and practice. Prevention efforts should begin prior to pregnancy and extend beyond the postpartum period. The strategies presented in this bulletin are intended to guide discussion, inform decision-making, and strengthen efforts to prevent injury-related mortality and morbidity throughout the reproductive years.

Endnotes

1 More information about the Safe Motherhood Campaign initiated by the Centers for Disease Control can be found at: www.cdc.gov/nccdphp/drh/smh_aag.htm.

2 This definition is recommended by the Maternal Mortality Study Group, a national group jointly chaired by the Division of Reproductive Health at the Centers for Disease Control and Prevention (CDC) and the American College of Obstetricians and Gynecologists (ACOG).

3 Methods may undercount injury deaths occurring before 20 weeks gestation.

4 The PAMR reported here differs from previously published figures due to improved case ascertainment methods and a broader definition of pregnancy-associated deaths.

5 The American Academy of Pediatrics (AAP) advocated screening mothers for domestic violence in the pediatric setting in a policy statement issued in June 1998 (AAP, 1998).

In addition, the link between domestic violence and child abuseis well documented. Subsequent intervention on behalf of the mother is “an active form of child abuse prevention” (Thompson & Krugman, 2001).

6 Examples of postpartum depression screening tools and published references are the following:

I Edinburgh Postnatal Depression Scale (self-report) Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression:Development of the 10 item Edinburgh Postnatal Depression Scale. Br J Psychiatry 1987;150:782-6. Available online at: www.clinicalsupervision.com/edinburgh%20scale.htm

II Postpartum Depression Screening Scale (PDSS) developed by Cheryl Beck and Robert Gable. This is a 35 item self-report instrument that can be administered in 5 to 10 minutes. The PDSS can be purchased from Western Psychological Services at: http://www.wpspublish.com

Acknowledgements

This bulletin was written by Angela Nannini, FNP, PhD, Catherine Oelschig, ScM, and Judith Weiss, ScD with technical assistance from Rebecca Goldstein, ScM, Meghan Kane, and Jane Lazar.

Thanks go to Elizabeth Brown, MD, and Barbara Herbert, MD, for their participation in case reviews.

In addition, we would like to thank the following individuals for their guidance and feedback.

Bureau of Family and Community Health

Sally Fogerty, MEd
Marci Diamond
Jeanne Mahoney RN
Carlene Pavlos, MTS
Cindy Rodgers, MSPH
Emily Feinberg, CPNP, ScD
Ellen Connorton, MSW
Donna Johnson, MSW

Bureau of Health Quality Management and Division of Health Care Quality

Paul Dryer, PhD
Chris Duerr, MSN, CPNP
Marie-Eileen Onieal, MMHS, CPNP

Registry of Vital Records and Statistics

Jane Purtill, MS
Charlene Zion

Data for this bulletin were provided by the Registry of Vital Records and Statistics, the Division of Health Care Quality, and Massachusetts Hospitals.

Special thanks go to MMMRC members for their invaluable participation in the case review process and review of this bulletin.

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Richard Evans, MD, Office of the Chief Medical Examiner

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Strategies were developed, in part, from proceedings of the Summit on Social Causes of Maternal Death, held at MDPH on August 16, 2000.

We thank the following attendees for their participation and advice:

Judy Atkins
Louise Bannister
Epi Bodhi
Sue Chandler
Judy Comoletti
Alba Cruz
Holly Curtis
Suzanna DeSilva
Janet Edmunson
Barbara Espey
Tracy Fisk
Yvonne Gomez-Carrion
Inta Hall
Ralph Hingson
Martha Kane
Ruth Kelly
Cheryl Kennedy
Marilee Kenny-Hunt
Jane Liebschutz
Karen Lissy
Kris Lyons
Susan Mann
Nancy Marsden
Mekdes Mesfin
Chris Miara
Janice Mirabassi
Barbara Morse
Ross Panacopoulos
Nancy Paull
Cary Perry
Lesley Reis
Steven Ringer
Drucilla Roberts
Jennifer Robertson
Cathy Romeo
Emily Rothman
Sadia Sadil
Kaydee Schmidt
Liza Sirota
Judith Weber
Paul Wise
Kim Wolski

Jane Swift, Governor
Robert P. Gittens, Secretary of Health and Human Services
Howard K. Koh, MD, MPH, Commissioner of Public Health
Sally Fogerty, Assistant Commissioner, BFCH

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